

ABSTRACT

The beginning detection, accommodation and frequency bias properties of the human hearing mechanism have been modeled to create systems that can detect directional transients ("sound events") in a sound field and localize them. These systems break down a sound field into sound events and non-sound events and separately localize the sound events and non-sound events. Sound events are generally identified according to the frequency bias and beginning detection properties. Once detected, the sound events are generally localized according to differential steering angles (steering angles to which the steady-state signals have been accommodated) or ordinary steering angles, both of which reflect the direction of a sound event indicated during the rise-time of the sound event. When no sound events are detected, non-sound events are localized according to a steering angle that does not reflect rapid motion.